Arizona Nuclear Power Project
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

November 15, 1984
ANPP-31130-TDS/TRB

50-529

U. S. Nuclear Regulatory Commission
Region V
1450 Maria Lane - Suite 210
Walnut Creek, California 94596-5368

Attention: Mr. D. F. Kirsh

Subject: Final Report - DER 84-15
A 50.55(e) Reportable Condition Relating To Welds Attaching Pipe Restraint Supports Less Than Design Calculated Dimensions In Unit 2.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between P. Narbut and J. Cook on March 21, 1984
B) ANPP-29285, dated April 12, 1984 (Interim Report)
C) ANPP-30071, dated July 30, 1984 (Time Extension)
D) ANPP-30479, dated September 11, 1984 (Time Extension)
E) ANPP-31012, dated October 30, 1984 (Time Extension)

Dear Sir:

Attached is our final written report of the deficiency referenced above, which has been determined to be Not Reportable under the requirements of 10CFR50.55(e).

Very truly yours,

E. E. Van Brunt, Jr.
APS Vice President
Nuclear Production
ANPP Project Director

EEVB/TRB/nj
Attachment

cc: See Page Two

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IE-27

cc: Richard DeYoung, Director
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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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FINAL REPORT - DER 84-15
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNIT 2

I. Description of Deficiency

Design drawings, specifications, and procedures do not fully identify all the requirements for welding a U shaped pipe restraint support to the pipe pressure boundary. Engineering calculations use a weld length equal to one half the circumference of the pipe (180 degrees) as a basis for determining the acceptable loading on anchor strap restraint supports. The design drawings depict the pressure boundary weld to extend from 0 to 180 degrees as shown in Figure A. Specifications 13-PM-204 and 13-PM-205 allows the substitution of a two directional guide strap for an anchor strap. The guide strap was originally designed with a 1/16" clearance between the pipe and strap as shown in Figure B. When the strap was slightly modified for use as an anchor strap, the weld joint was reduced to an angle as small as 120 degrees as shown in Figure C. This substitution presents three conditions which were not addressed in the specification:

1. The minimum length of weld required.

2. Maximum allowable fillet weld leg size.

3. Provisions to increase the fillet leg size when the gap between the restraint and the pipe is not a formed fit-up of 0 to 1/16" clearance.

Without direction covering the above requirements, the field practice was to perform welding until approximately 1/8" gap was encountered between the pipe and the restraint. This practice has resulted in welds which are less than the calculated weld dimensions.

Evaluation

This condition was initially documented by Corrective Action Request (CAR) S-84-21 which identified seven pipe restraint welds to the pipe pressure boundary which were less than 180 degrees of weld. Engineering evaluated the subject pipe supports of CAR S-84-21; also, an additional 261 "Q class" pipe supports (shown on 265 drawings) were analyzed for minimum required weld length. This analysis incuded all "Q class" supports utilizing anchor strap type restraints. Based on these evaluations specific acceptance criteria were established to provide an adequate weld length between the anchor strap and pressure boundary.

Using these clarified criteria, Bechtel Construction reinspected all the identified pipe supports in Unit 1. Supports which did not meet these criteria were reported on NCRs PC-8523, PA-8616, PA-8617, and PX-8839. Engineering evaluated the conditions identified by these NCRs and found all the installations to be within acceptable loading conditions. Calculations 13-MC-ZZ-003, Revision 0, was prepared to document this analysis.

The root cause of this condition is identified as Engineering's failure to provide acceptance criteria covering all variations which may exist during installation of strap type restraints. QC adopted acceptance criteria based on practice instead of having the criteria identified in engineering design documents. Based on many previous inspections by engineering and audits by independent organizations, no other similar pipe support conditions exist.

II. Analysis of Safety Implications

Based on the above, this condition is evaluated as not reportable under 10CFR50.55(e) or 10CFR Part 21; since if left uncorrected, it would not represent a significant safety condition.

III. Corrective Action

A. Remedial Action

The applicable supports in Unit 1 were reinspected as required by special procedure WPP/QCI 559.0. Nonconforming installations were documented by NCRs PC-8523, PA-8616, PA-8617, and PX-8839. The nonconforming installations were reviewed by Engineering and dispositioned use-as-is.

Due to a difference in types of straps used, Units 2 and 3 will be reinspected under specially prepared WPP/QCIs 560.0 and 561.0, respectively. NCRs will be issued to correct any deficiencies found. These NCRs will cross-reference this DER for reportability disposition. This work will be completed prior to fuel load in each unit.

B. Action to Preclude Recurrence:

To address the root cause, Engineering has clarified anchor strap inspection criteria by revising the following design documents:

Drawing 13-S-ZAS-519, DCNs No. 8 and No. 9 (Reference FCRs 79006-P and 79346-P)
Drawing 13-RC-081-H00G (Reference FCR 79347-P)
Drawing 13-SI-249-H00C (Reference FCR 79348-P)
Specification 13-PM-204, SCN No. 3725 (Reference FCR 79420-P)
Specification 13-PM-205, SCN No. 3726 (Reference FCR 79421-P)

Construction has provided additional anchor strap inspection criteria under WPP/QCI 201.1 and 201.0 via Procedure Change Notices (PCN) 154 and 105, respectively.

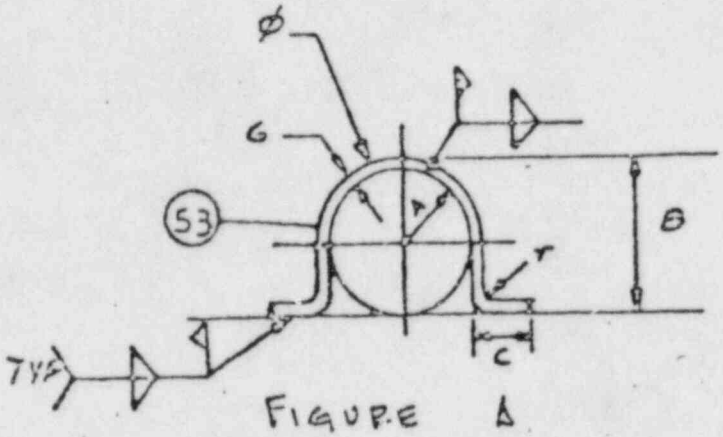

FIGURE A

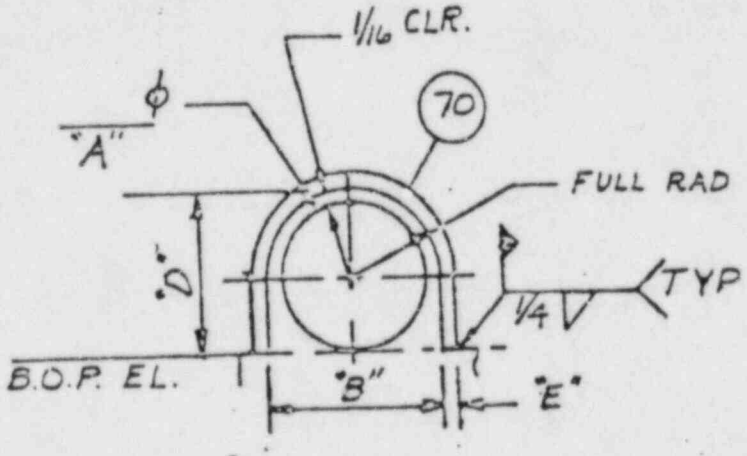

FIGURE B

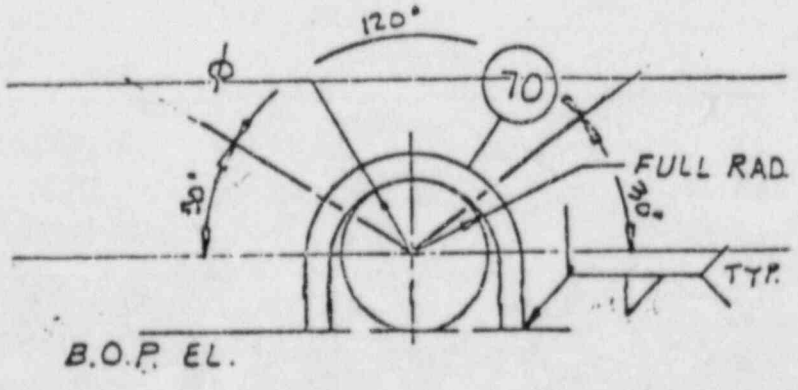

FIGURE C